Amendments to the Claims:

1. (Currently Amended) A mold assembly for distributing a resin throughout a dry fiber preform to form a composite structure, said mold assembly comprising:

a first mold line tool supporting the dry fiber preform;

a second mold line tool disposed on a portion of the dry fiber preform to form a hard interface between the second mold line tool and the portion of the dry fiber preform;

a vacuum bag encapsulating the second mold line tool and forming an air-tight seal around the hard interface;

a resin supply connected in fluid communication with the dry fiber preform and supplying resin to the hard interface; and

a vacuum supply connected in fluid communication with the mold assembly, supplying vacuum pressure to the hard interface and drawing excess resin away from the hard interface such that the composite structure ~~is tightly toleranced~~has a tight tolerance at the hard interface after curing and wherein said tight tolerance is within ±0.015 inches or less.

2. (Original) The mold assembly according to claim 1, wherein said second mold line tool includes a mold detail positioned at said hard interface such that said mold detail is imprinted on the composite structure.

3. (Currently Amended) ~~The~~ A mold assembly ~~according to claim 1, further including~~ for distributing a resin throughout a dry fiber preform to form a composite structure, said mold assembly comprising:

a first mold line tool supporting the dry fiber preform;

a second mold line tool disposed on a portion of the dry fiber preform to form a hard interface between the second mold line tool and the portion of the dry fiber preform;

a vacuum bag encapsulating the second mold line tool and forming an air-tight seal around the hard interface;

a resin supply connected in fluid communication with the dry fiber preform and supplying resin to the hard interface;

a vacuum supply connected in fluid communication with the mold assembly, supplying vacuum pressure to the hard interface and drawing excess resin away from the hard interface such that the composite structure is tightly toleranced at the hard interface after curing; and

an external locating fixture rigidly fixed to the second mold line tool through an opening in the vacuum bag, said fixture positioning the second mold line tool within a tight tolerance.

4. (Original) The mold assembly according to claim 3, wherein said tight tolerance is within ±0.015 inches or less.

5. (Original) The mold assembly according to claim 3, further including a mounting seal sealing the opening in the vacuum bag against airflow.

6. (Original) The mold assembly according to claim 1, further comprising a plurality of second mold line tools positioned on portions of the dry fiber preform, each second mold line tool being encapsulated in the vacuum bag.

7. (Original) The mold assembly according to claim 1, wherein the vacuum supply is connected to the mold assembly through a vacuum line passing through an autoclave vessel.

8. (Original) The mold assembly according to claim 1, wherein the resin supply is a liquid resin supply connected in fluid communication with the dry fiber preform through a resin inlet line.

9. (Original) The mold assembly according to claim 1, wherein the resin supply is a resin film disposed on the dry fiber preform.

10. (Original) A resin infusion mold assembly connected to a resin supply and a vacuum supply for distributing a resin throughout a dry fiber preform, said mold assembly comprising:

an outer mold line tool supporting the dry fiber preform and in fluid communication with the resin supply such that resin is dispensed into the dry fiber preform;

an inner mold line tool disposed on a portion of the dry fiber preform;

a vacuum bag encapsulating the inner mold line tool and sealed tight against airflow, said vacuum bag in fluid communication with the vacuum supply such that excess resin under the vacuum bag is drawn away from the dry fiber preform;

an external locating fixture rigidly fixed to the inner mold line tool through an opening in the vacuum bag, said fixture positioning the inner mold line tool within a tight tolerance; and

a mounting seal sealing the opening in the vacuum bag against airflow.

11. (Original) The resin infusion mold assembly according to claim 10, wherein said inner mold line tool includes a mold detail positioned at a hard interface between the inner mold line tool and the portion of the dry fiber preform.

12. (Original) The resin infusion mold assembly according to claim 10, further comprising a plurality of inner mold line tools disposed on portions of the dry fiber preform and encapsulated in the vacuum bag.

13. (Original) The resin infusion mold assembly according to claim 10, wherein said tight tolerance is within ±0.015 inches or less.

14. (Currently Amended) A resin infusion apparatus, comprising:

a resin infusion mold assembly, comprising

a first mold line tool,

a pre-bled fiber preform having a resin distributed therein to a fiber volume of at least 53%, said pre-bled fiber preform supported on the first mold line tool,

a second mold line tool disposed on a portion of the pre-bled fiber preform,

a bag forming an air-tight encapsulation around the second mold line tool and the portion of the pre-bled fiber preform, and

a conduit connected in fluid communication with the bag; and

an autoclave with a pressurized chamber containing the resin infusion mold assembly and applying a pressure to the resin infusion mold assembly, the conduit passing through an opening in the pressurized chamber such that the pressure on the resin infusion mold assembly urges additional resin out of the resin infusion mold assembly, through the conduit and out of the pressurized chamber.

15. Canceled.

16. (Original) The resin infusion apparatus according to claim 14, wherein the pressure in the autoclave is sufficient to urge resin from the resin infusion mold assembly and increase the fiber volume of the fiber preform to at least 57%.

17. (Currently Amended) ~~The~~ A resin infusion apparatus ~~according to claim 14,~~ comprising:

a resin infusion mold assembly, comprising

a first mold line tool,

a pre-bled fiber preform having a resin distributed therein, said pre-bled fiber preform supported on the first mold line tool,

a second mold line tool disposed on a portion of the pre-bled fiber preform,

a bag forming an air-tight encapsulation around the second mold line tool and the portion of the pre-bled fiber preform, and

a conduit connected in fluid communication with the bag; and

an autoclave with a pressurized chamber containing the resin infusion mold assembly and applying a pressure to the resin infusion mold assembly, the conduit passing through an opening in the pressurized chamber such that the pressure on the resin infusion mold assembly urges additional resin out of the resin infusion mold assembly, through the conduit and out of the pressurized chamber;

wherein the mold assembly further comprises an external locating fixture rigidly fixed to the second mold line tool through an opening in the vacuum bag, said fixture positioning the second mold line tool within a tight tolerance.

18. (Original) The resin infusion apparatus according to claim 17, wherein the mold assembly further comprises a mounting seal sealing the opening in the vacuum bag against airflow.

19. (Original) The resin infusion apparatus according to claim 18, wherein the tight tolerance is within ±0.015 inches or less.

20. (Original) The resin infusion apparatus according to claim 14, wherein said second mold line tool includes a mold detail positioned at a hard interface between the second mold line tool and the portion of the pre-bled fiber preform.

21. (Original) The resin infusion apparatus according to claim 20, further comprising a plurality of second mold line tools positioned on portions of the dry fiber preform, each second mold line tool being encapsulated in the vacuum bag.

22. (Cancelled) A method of vacuum assisted resin transfer molding, comprising:

forming a resin transfer assembly by positioning a dry fiber preform on a tool and sealing at least a portion of the dry fiber preform in a vacuum bag;

positioning the resin transfer assembly in an autoclave;

infusing the resin into the dry fiber preform;

vacuum pressurizing a resin outlet line and bleeding resin out of the fiber preform concurrent with pressurizing the resin inlet line;

detaching the resin inlet line; and

pressurizing the autoclave and bleeding additional resin out of the fiber preform.

23. (Cancelled) The method of claim 22, further comprising the step of attaching the resin inlet line and the resin outlet line to the resin transfer assembly before pressurizing the inlet and outlet lines.

24. (Cancelled) The method of claim 22, wherein said steps of pressurizing the inlet and outlet lines result in a fiber volume fraction of at least 53% in the fiber preform.

25. (Cancelled) The method of claim 24, wherein said step of pressurizing the autoclave results in a fiber volume fraction of at least 57% in the fiber preform.

26. (Cancelled) The method of claim 22, wherein said step of forming a resin transfer assembly includes positioning a second tool on the portion of the dry fiber preform and sealing the second tool in the vacuum bag along with the portion of the dry fiber preform.

27. (Cancelled) The method of claim 26, wherein said step of forming a resin transfer assembly further includes rigidly fixing an external locating fixture to the second tool through a hole in the vacuum bag and positioning the second tool within a tight tolerance.

28. (Cancelled) The method of claim 27, wherein said step of forming a resin transfer assembly further includes sealing the hole in the vacuum bag against airflow with a mounting seal.

29. (Cancelled) The method of claim 27, wherein said step of positioning the second tool within the tight tolerance includes positioning the tool within ±0.015 inches or less.

30. (Cancelled) The method of claim 26, wherein said step of forming a resin transfer assembly further includes positioning a mold detail on the second mold line tool at a hard interface between the second mold line tool and the portion of the dry fiber preform.

31. (Cancelled) The method of claim 22, wherein said pressurizing the autoclave step includes drawing away the additional resin bled from the fiber preform through the resin outlet line

32. (Cancelled) A method of manufacturing a resin-impregnated composite, comprising:

encapsulating a dry fiber preform within a fluid-impermeable container;

supplying a resin to the fluid-impermeable container and infusing the dry fiber preform with the resin;

providing an outlet from the fluid-impermeable container; and

applying an external pressure to an external surface of the fluid-impermeable container resulting in a internal pressure increase within the fluid-impermeable container wherein the internal pressure increase is attributable to, and in proportion to, the external pressure increase, said internal pressure increase urging the resin out of the preform and fluid-impermeable container and increasing a fiber-volume fraction of the resin-impregnated composite.

33. (Cancelled) A method of Claim 32, wherein applying the external pressure includes applying an external pressure up to a peak of 100 psi.

34. (Cancelled) A method of Claim 32, wherein supplying the resin includes connecting the fluid-impermeable container to a resin supply and wherein infusing the preform includes supplying a vacuum to the fluid-impermeable container.

35. (Cancelled) A method of Claim 34, wherein the fiber-volume fraction of the composite is 57% or greater.

36. (New) A composite structure comprising:

a fiber preform having a fiber volume of at least 53% resulting from a simultaneous pressure bleed and autoclaving process.